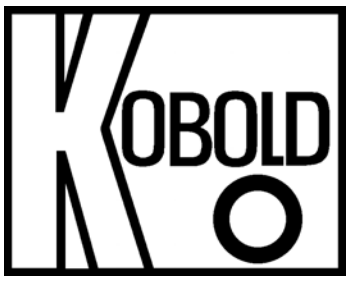
Operating Instructions
for
pressure transmitter
with digital display

Model: PDA



1. Contents

1. Contents....2
2. Note....3
3. Regulation use....3
4. Operating Principle....3
5. Instrument Inspection....4
6. Mechanical connection....4
7. Electrical connection....5
8. Commissioning....6
   8.1. Key function....6
9. Configuration....7
   9.1. Value setting....7
10. Set-up mode....8
11. Main menu items....9
   11.1. Current output....9
   11.2. Filter....9
   11.3. Start adjustment....9
   11.4. Change Code....9
12. Technical Information....10
13. Order Codes....11
14. Maintenance....11
15. Dimensions....12
16. Declaration of Conformance....13

Manufactured by: Kobold Messring GmbH

Sold by: Komponentautomatic AB
Box 265
771 26 Ludvika
Tel.: +46(0)240 - 150 09
Fax: +46(0)240 - 61 11 08
E-Mail: info@komponentautomatic.se
www.komponentautomatic.se

2. Note

Please read these operating instructions before unpacking and putting the unit into operation. Follow the instruction precisely as described herein.
The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

3. Regulation use

Pressure transmitters are used to measure pressure in vessels, hydraulic and pneumatic plant, refrigeration equipment and so forth.
Any use of the pressure transmitter “PDA” which exceeds the manufacturers specification, will invalidate the warranty and any resultant damage is therefore not the responsibility of the manufacturer. The user assumes all risk for such usage.

4. Operating Principle

The KOBOLD pressure transmitters, model PDA, are electronic measuring instruments with a digital display of the system pressure. There is an output signal (0)4-20 mA for transmission. The sensor element is a piezoresistive ceramic cell. The PDA is used wherever exact pressure measurements with compact local display is required. The PDA is perfect for industrial use because of its high long-term stability, save reproducibility and its small robust package.

5. Instrument Inspection

Instruments are checked before shipping and should arrive in perfect condition.
In case of damage, please inform your local Kobold office or your parcel forwarding agent immediately, since they are responsible for damages during transit. Should the damage to a device be visible, we recommend a thorough inspection of the delivery packing.

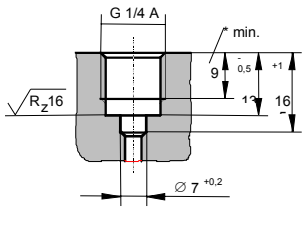
Scope of delivery:

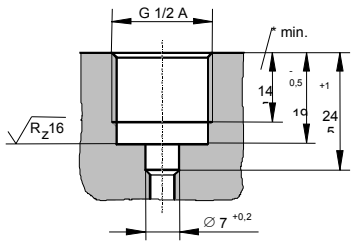
- Pressure transmitter PDA
- Operating Instructions

6. Mechanical connection

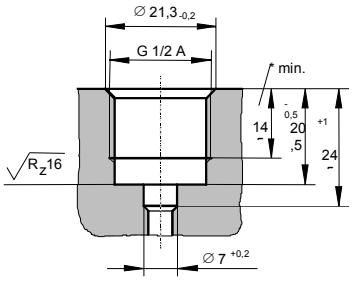
Pressure taps should be prepared according to the following specifications for the screw-in holes.
Gaskets to DIN 16 258 or formed gaskets are recommended for sealing British Standard Parallel Pipe thread (BSPP). The required tightening torque depends on the material and shape of the gasket used, and on the pressure port in the pressure sensor. National Pipe Thread (NPT) fittings should be sealed with an appropriate pipe thread sealant. Exposure to violent shocks and heat radiation should be avoided.
The permissible service conditions for the pressure sensors should be observed.
When the pressure connection has been made and the power supply connected, the sensor is ready for operation.

Sealing according DIN 16288





Sealing with Flat gasket



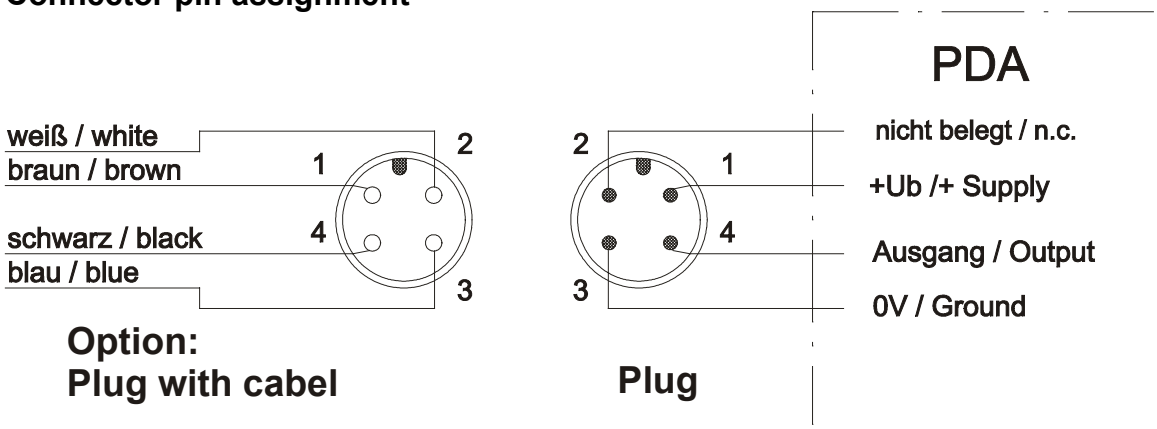
7. Electrical connection

Important! Make sure that the voltages in your plant correspond with the voltages on the nameplate.

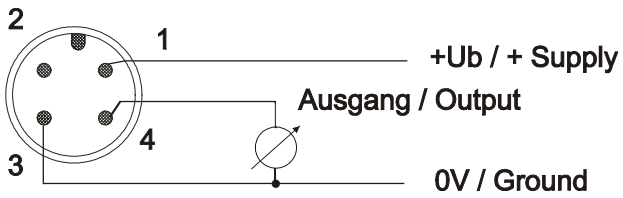
- Make sure that the electrical supply lines are dead.
- The supply is connected through connector socket M12x1 as shown in the wiring diagram below.
- Mating plugs with different cable lengths are available as options.

Important! The instrument electronics may be damaged if the cable connections are connected incorrectly.

Connector pin assignment



Wiring diagram



Plug

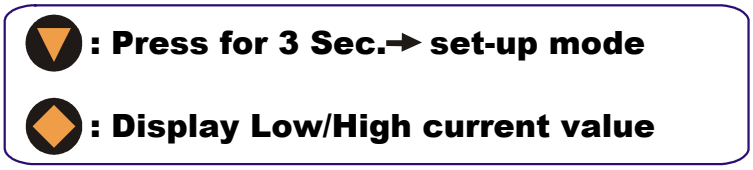
8. Commissioning

Caution! Please note that if operated at high system temperatures the case surface and controls can become very hot.

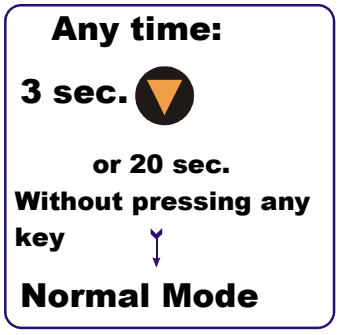
Connect the pressure transmitter according to the wiring diagram above and supply it with the specified voltage.
The measuring range (upper range value) is displayed for 3 seconds after switch on.

8.1. Key function

Normal mode (measuring mode)



Set-up mode



9. Configuration

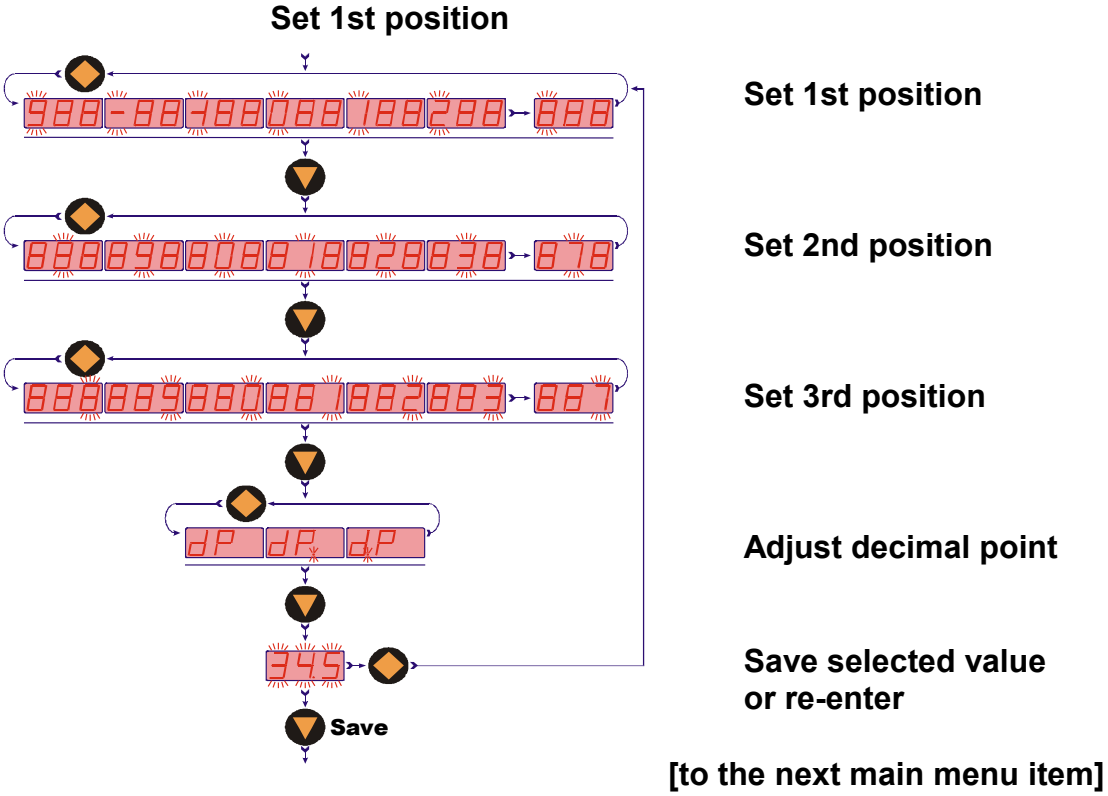
The following values can be programmed on the pressure transmitter:

	Range of values	Factory setting
Start current (**S-C**) zero	0 to upper range value	0
End current (**E-C**) span	0 to upper range value	upper range value
Start current selection (**SCS**)	0 / 4 mA	4
Filter (**Filt**)	1/2/4/8/16/32/64	1
Start adjustment (**S-A**,) tare	000	adjusted
Change Code (**CCo**,)	000 - 999	000

9.1. Value setting

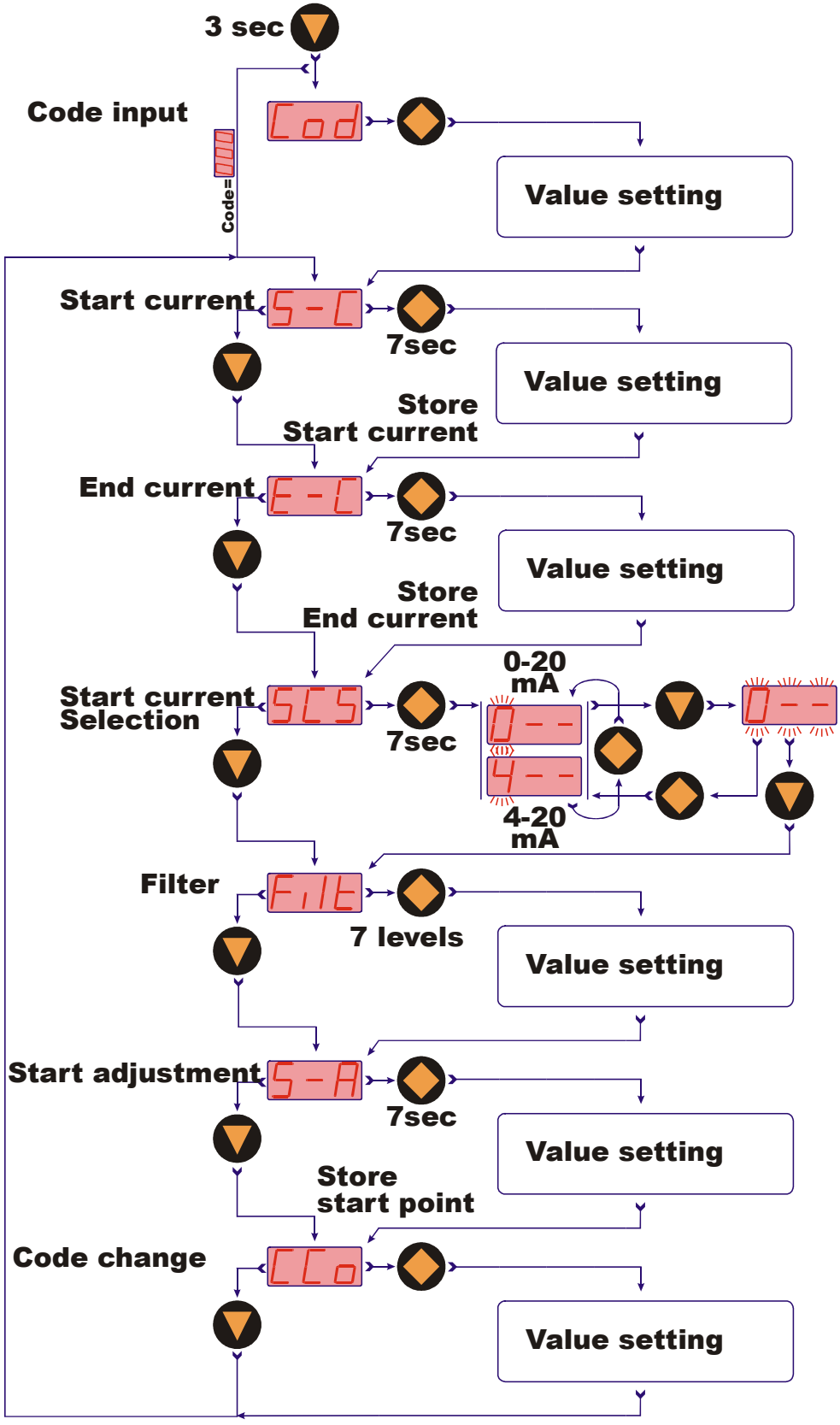
Value setting can be selected with the "◆" key in the main menu item (for example: End current, "**E-C**"). The standard sequence for changing parameters is given in the flowchart below.

[from the main menu item]



[to the next main menu item]

10. Set-up mode



11. Main menu items

11.1. Current output

The current output is set in menu items

"**S-C**" Start current indicated value < > 0(4) mA
"**E-C**" End current indicated value < > 20 mA
"**SCS**" Start current selection (0-20 mA or 4-20 mA).

The indicated value at which 0(4) mA is transmitted is entered in menu item Start current. The indicated value at which 20 mA is transmitted is entered in the menu item End current.

11.2. Filter

The filter function "**Filt**" generates the sliding average value from the measured values. This acts to dampen the output in a system which has pressure pulsations. The following values are available (see Section 9 Settings):

1 / 2 / 4 / 8 / 16 / 32 / 64

The filter value determines the dynamic behaviour of the indicated value: high values mean a slow display with smoother response. The filter is disabled if a filter value of "1" is selected. In other words, the indicated value is equal to the unfiltered measured value (no dampening occurs).

The integrated step detector responds to a measured-value step change greater than approximately 6.25% of the upper range value. When a measured-value step change is detected, the actual measured value is displayed immediately.

11.3. Start adjustment

The **zero-point** can be recalibrated when the sensor is in the unpressurized state. As a security precaution, the operator must hold the "◆" key pressed for 7 seconds, before he can activate Value setting menu item "**S-A**".

11.4. Change Code

Change code "**CCo**" protects the device against unauthorized changing of the set device parameters by allowing the operator to enter a secret code. If the code set is different to 000, then the operator must enter the set code before entering the set-up mode.

12. Technical Information

Case cover:	stainless steel 1.4305
Connections:	G 1/4 or G 1/2 male thread stainless steel 1.4404 option: 1/4 or 1/2 NPTF others on request
Gasket:	Viton (option: EPDM)
Principle of measurement:	monolithic ceramic sensor
Display:	3-digit LED, height of digits 7mm
Resolution:	max. 0.01 bar (depending on measured value and measuring range)
Max. temperature:	-20 to +80 °C medium -20 to +80 °C ambient
Overpressure:	3-fold (measuring range ≤ 60 bar) 2-fold (100 bar ≤ measuring range ≤ 250 bar) 1.5-fold (measuring range = 400 bar)
Supply:	24VDC ± 20%
Power consumption:	approximately 80 mA
Electrical connection:	plug connector M12x1 option: cable on request
Output:	0(4)-20 mA
Load:	max. 500 ohm
Settings:	programmable with 2 buttons 4-20 mA or 0-20 mA (factory setting: 4-20 mA) - start point/end point (current) - filter - zero point - security code
Overrange/underflow indication:	on LED display
Measuring cycle:	0.5 sec.
Accuracy:	0.5 % f. s.
Protection type:	IP 65

13. Order Codes

Model	Description	Electrical connection	Mechanical connection	Measuring range
PDA-15	Pressure transmitter with digital display and analogue output. Stainless steel housing	3=Plug M12x1 1=1m PVC-cable 9=length of cable (in meters)	R2=G 1 / 4 R4=G 1 / 2 N2=1 / 4 NPT N4=1 / 2 NPT	C315=-1 to 0 bar B025= 0 to 1 bar B035=0 to 1,6 bar B045=0 to 2,5 bar B055=0 to 4 bar B065=0 to 6 bar B075=0 to 10 bar B085=0 to 16 bar A095=0 to 25 bar A105=0 to 40 bar A115=0 to 60 bar A125=0 to 100 bar A135=0 to 160 bar A145=0 to 250 bar A155=0 to 400 bar

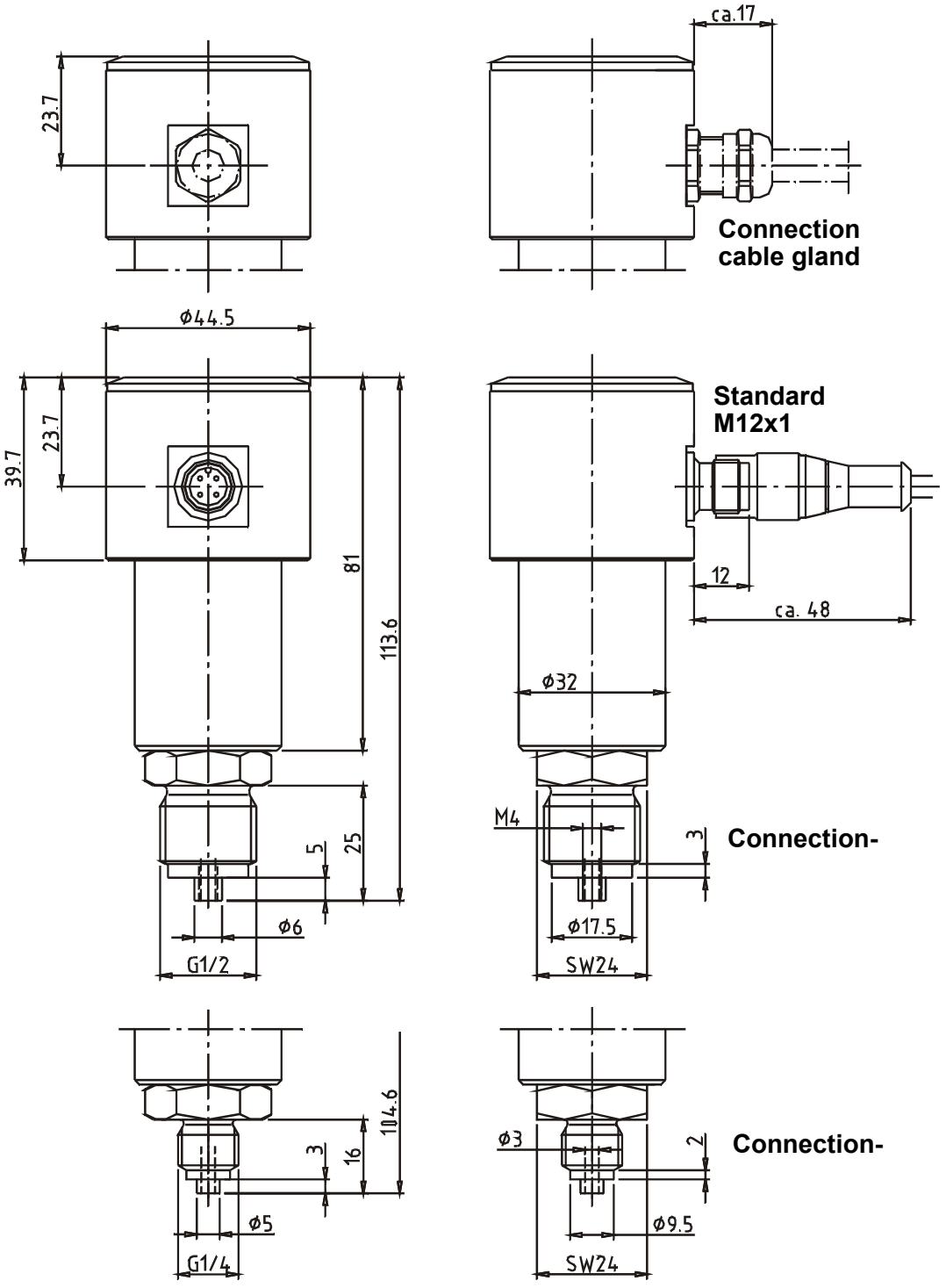
Additional: Electrical connection

Description	Model
M12x1 Box with 2 m Cable	ZUB-KAB-12K002
M12x1 Box with Quickon-Plug	ZUB-KAB-12Q000

14. Maintenance

The instrument requires no maintenance when properly used. Deposits, due to fouled media, can give rise to invalid measured values.

15. Dimensions



Info! The matching M12x1 box with 2 m cable for the M12x1 plug connector is available under order code ZUB-KAB-12K002. (Fig. with box)

16. Declaration of Conformance

We, KOBOLD-Messring GmbH, Hofheim-Ts, Germany, declare under our sole responsibility that the product

Pressure transmitter with digital display model PDA

to which this declaration relates is in conformity with the standards noted below:

EN 50081-1 1992
Electromagnetic compatibility (EMC) - Interference emission in the home

EN 50082-2 1995
Electromagnetic compatibility (EMC) - Noise immunity in industry

EN 61010-1 1993
Safety requirements for electrical measuring, control and laboratory instruments

Also the following EWG guideline is fulfilled:

89/336 EWG

Signed: date: 05.10.01

H. Peters M. Wenzel